

REMARKS

Claims 1, 7 and 8 stand rejected in the Office Action. Claim 1 has been amended to overcome formal and art-related rejections. Upon entry of the amendment, claims 1, 7 and 8 remain pending.

Support for the formal amendments to claim 1 finds support in the original specification, including the claims. Support for the art related amendment to claim 1 is found in the specification as filed, for example at pages 12 and 13 as discussed below. Applicants respectfully request entry of the amendments.

Rejections Under 35 U.S.C. § 112

New Matter Rejection

Claims 1, 7 and 8 are rejected under 35 U.S.C. § 112, first paragraph as containing new matter. The Examiner states that the specification as originally filed does not support the limitation of “a transducing element capable of transducing change in electric impedance in connection with absorbing aromatic molecules inside the organic film into electrical signals.” In the last Office Action, Applicants pointed to page 8 for support. As discussed below, other portions of the specification as originally filed also give support for the added limitation. In light of the discussion below, Applicants respectfully traverse the rejection and request reconsideration.

Applicants have amended claim 1 to recite that the transducing element “transduces change in electric impedance in connection with absorbing aromatic molecules inside the organic thin films into electric signals”. A former version of claim 1 recited that the transducing element transduced “information recognized by the organic thin films into electric signals”. To avoid a new matter rejection, Applicants must show that there is support in the specification for transducing a “change in electric impedance in connection with absorbing aromatic molecules”. It is not necessary to show literal, *ipsis verbis* support for the amendment. It is enough if the concept is present in the specification.

Support for the formal amendment to claim 1 is found in the specification, for example on page, beginning at line 14. Volatile molecules are absorbed to the surface of electro-conductive polymers (lines 14-15). Examples of such molecules include aromatic molecules (line 20). The polymer film changes its property upon absorption of the aromatic molecules,

which causes a change in electric resistance (or impedance) of the film (lines 22-26). Finally, the changes in electric resistance are transformed (transduced) into electric signals for detection (lines 26-27).

On the basis of the above, Applicants respectfully submit that there is support in the original specification for the limitation of claim 1 that the transducing element transduces change in electric impedance in connection with absorbing aromatic molecules inside organic thin films. Accordingly, Applicants respectfully request that the new matter rejection be withdrawn.

Indefiniteness Rejection

Claims 1, 7 and 8 are rejected under 35 USC §112, second paragraph as indefinite. The Examiner states that the limitation in step (b) of “ejecting the solution via the ink jet nozzle to rest on the microelectrodes” is confusing and renders the claims indefinite. The Examiner further states that the recitation in claim 1 that the sensor device has “a transducing element capable of transducing change in electric impedance” is indefinite. Applicants respectfully traverse the rejections as applied to the amended claims and request reconsideration.

Applicants have amended claim 1 to recite that step (b) consists of “ejecting the solution via the ink jet nozzle”. That is, Applicants have eliminated the allegedly confusing and indefinite phrase “to rest of the microelectrodes”. As the Examiner notes on page 4 of the Office Action, such an amendment to step (b) of claim 1 is consistent with the earlier recitation in claim 1 that the solution is printed such that organic thin films are formed on the microelectrodes.

Applicants have also amended claim 1 to recite that the transducing element “transduces change in electric impedance . . . into electric signals”. With this amendment, Applicants have removed the allegedly indefinite language that the transducing element was “capable of transducing change in electric impedance”. Such transducing elements are described in detail in the specification. See for example the discussion following page 10, lines 18-19.

For the reasons discussed above, Applicants believe that claims 1, 7 and 8 as amended are definite. Accordingly, Applicants respectfully request the rejection under 35 USC §112, second paragraph be withdrawn.

Claim Rejections Under 35 USC §103

Claims 1 and 7 are rejected under 35 USC §103 as unpatentable over Musho, et al., U.S. Patent 5,250,439 (the Musho reference) in view of Hayes, et al, U.S. Patent 4,877,745 (the Hayes reference). Applicants respectfully traverse the rejection as applied to the amended claims and request reconsideration.

For a rejection of claims under §103 over a combination of references to be sustained, the references when combined must teach or suggest every limitation of the claims. If the combined references fail to teach a claim limitation, the rejection should be withdrawn.

Claim 1 has been amended to recite "the transducing element comprises a thin film transistor that transduces a difference between a predetermined voltage and a voltage generated by a constant current flowing through a solution applied between the microelectrodes into an electric signal corresponding to the difference." Support for the amendment is found in the specification as originally found.

The key inquiry as to whether there is written description support for a claim amendment is whether the specification shows the inventor possessed the invention at the time of filing. Such support need not be literally the very words sought to be entered as a claim amendment. It suffices if the concept is present.

The specification shows inventors were in possession of the (amended) claimed invention. Page 12, lines 12ff indicate that microelectrodes comprising thin film transistors are used to detect volatile substances. The rest of page 12 illustrates how electric signals are generated when a molecule is absorbed into the polymer film that is formed between the thin film resistors of the microelectrodes. Figure 5 and the accompanying description on page 10 beginning on line describe one way such circuits can detect the electric signals. Specifically, a constant current is flowed through a resistance sensor (lines 27-28); a predetermined voltage is subtracted using a differential amplifier (page 11, lines 4-6); and the difference is amplified (lines 5-6). In this way the thin film transistor transduces a difference between a predetermined voltage and a voltage generated by a constant current flowing through a solution applied between the microelectrodes into an electric signal corresponding to the difference.

The references do not teach the limitation that "the transducing element comprises a thin film transistor that transduces a difference between a predetermined voltage and a voltage

generated by a constant current flowing through a solution applied between the microelectrodes into an electric signal corresponding to the difference." Applicants respectfully submit that amended claim 1 and claim 7 depending from claim 1 are patentable over the cited references, and respectfully request that the rejection be withdrawn.

Claim 1 is rejected under 103 as unpatentable over Lewis, U.S. Patent 5,571,401 (the Lewis reference) in view of the Hayes reference. Applicants respectfully traverse the rejection as applied to the amended claims and request reconsideration.

As discussed above for the rejection over the Musho reference, the references when combined do not teach the claim limitation that "the transducing element comprises a thin film transistor that transduces a difference between a predetermined voltage and a voltage generated by a constant current flowing through a solution applied between the microelectrodes into an electric signal corresponding to the difference." Accordingly, Applicants respectfully request the rejection be withdrawn.

Claims 1, 7 and 8 are rejected under 35 U.S.C. §103 as unpatentable over the Musho reference in view of the Hayes reference and further in view of Smith U.S. Patent 4,874,499 (the Smith reference). Alternatively, the claims are rejected over the Lewis reference in view of the same two secondary references. Applicants respectfully traverse the rejection as applied to the amended claims and request reconsideration.

Applicant respectfully submit that the Smith patent is not sufficient to overcome the deficiencies of the Musho, Lewis, and Hayes references, discussed above. For this reason, Applicants respectfully request the rejection be withdrawn.

CONCLUSION

For the reasons discussed above, Applicants believe that claims 1, 7, and 8 are in an allowable condition and respectfully request an early notice of such allowance. The Examiner is invited to telephone the undersigned if that would be helpful to resolving any issue.

Respectfully submitted,

Dated: _____

April 10, 2003

By: _____

G. Gregory Schvley, Reg. No. 27,382

Bryant E. Wade, Reg. No. 40,344

Attorneys for Applicants

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600